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October 17, 2003

Mr. Stephen R. Kratzke
Associate Administrator for Rulemaking
National Highway Traffic Safety Administration
400 Seventh Street, S.W.
Washington, D.C. 20590

RE: NHTSA Docket 03-14396 - 7
Federal Motor Vehicle Safety Standard No. 224: Rear Impact Protection
NPRM: 68 Fed.Reg. 54879 (September 19, 2003)

Dear Mr. Kratzke:

Red River Manufacturing, a Division of Trail King Industries, Inc. of West Fargo, North Dakota, files these comments in strong support of NHTSA's proposal to amend Federal Motor Vehicle Safety Standard No. 224, Rear Impact Protection, to create a permanent exclusion for road construction controlled horizontal discharge semitrailers (RCC horizontal discharge trailers) from the requirements of the standard.

Red River was one of two manufacturers of horizontal discharge semitrailers to petition NHTSA jointly in March 2001 to exclude these trailers from the standard due to the unique compliance challenges presented by their design. RCC horizontal discharge trailers are used to deliver asphalt and other road building materials directly into receptacles, such as paver hoppers, at the construction site. Unlike steel end dump trailers, RCC horizontal discharge trailers discharge their contents by means of a belt attached to a chain system powered by a direct hydrostatic drive. This conveyor system funnels the asphalt or other material horizontally into the hopper or paver. This function requires the rear end of the trailer to be positioned over the hopper, and the conveyor system must extend into the hopper approximately twenty inches during the discharge event. The hoppers have hydraulic arms that lock onto the trailer's rear wheels during the discharge. Because the rear end of the trailer must actively engage the hopper in order to perform the work of discharging asphalt into the hopper, a fixed underride guard is not feasible or practicable for these vehicles, because it would make it impossible to position the trailers over the hoppers for the delivery of the construction materials.

Moreover, road construction hoppers are not standardized in size. Their openings typically range from thirty-one inches to nearly thirty-five inches above the ground. Some older paver hoppers are even higher, with openings more than thirty-six inches above the ground. The bottom of the conveyor structure on Red River's trailers is thirty-six to thirty-seven inches from the ground, depending upon tire size. This means that there is a very tight clearance of no more than five inches, and usually much less, between the top of the paver hopper and the bottom of the trailer.

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For several years, Red River has been working on developing a retractable underride guard that would comply with FMVSS No. 224 and permit the trailer to continue to perform its work. During that period of time, Red River and other manufacturers of RCC horizontal discharge trailers have petitioned for, and been granted, several exemptions from FMVSS No. 224 for these vehicles. When FMVSS No. 224 was first promulgated, Red River petitioned for, and was granted, a more extensive exemption that also applied to a similar horizontal discharge trailer used to deliver agricultural commodities into receptacles. Through considerable investments of time and resources, Red River was successful in developing a compliant "wheels back" design for its agricultural trailers during the exemption periods, and did not need to seek further exemptions for these products after 2001. The "wheels back" solution to the compliance challenge for the agricultural trailers was infeasible for the RCC horizontal discharge trailers, however, because it does not permit the asphalt conveyor to reach sufficiently into the paver hoppers.

After substantial expenditures and efforts to design a retractable underride guard for its RCC horizontal discharge trailers, which have been documented in previous filings with the agency, Red River concluded in 2001 that a compliant retractable guard was not feasible or practicable, and joined with Dan Hill Associates, another manufacturer of RCC horizontal discharge trailers, to petition for a permanent exclusion from the standard for these vehicles. As described in the petition, the primary obstacle to designing a compliant retractable guard is the lack of adequate clearance between the bottom of the trailer and the top of most pavers. As noted above, there is a maximum of five inches between the bottom of Red River's horizontal discharge trailers and the top of the smallest pavers, and often the clearance is much less. The performance standards of FMVSS No. 223 require underride guards to absorb energy over a range of deformation of four inches. The retractable guard's bumper support structure needed to comply with those performance standards has to be so large that it will not allow the RCC horizontal discharge trailer to work with taller paver hoppers at all, and would be a very tight fit over the smaller paver hoppers. Red River considered, and rejected, the option of redesigning the trailers to increase their height by four or five inches, because that would raise the center of gravity of the trailers, increasing the risk of tipover of the vehicles.

As noted by NHTSA in the NPRM, an additional difficulty in designing and locating a retractable guard is the location of the planetary gearbox that drives the conveyor system, which is located in the approximate area that the retractable guard would have to be located. Red River has not identified another suitable location for that gearbox. Red River also identified substantial manufacturing challenges for a retractable guard, in that there could be essentially no tolerance for variability in the alignment of the guard's pivot points.

Even if a retractable guard could have been designed to overcome these challenges, the environment in which these vehicles operate presents additional challenges to the reliability of the retractable guard in the field. Red River, Dan Hill Associates and E.D. Etnyre & Co. jointly wrote to NHTSA in August, 2002, to point out that the theoretical safety benefits of a retractable guard are compromised in the real world because the complex retraction mechanism requires operator interaction to reposition the guard after each offload cycle. Moreover, the accumulation of asphalt residue on the underride guard presents significant maintenance obligations that are unattractive to potential customers of this product. Indeed, if the mating surfaces of the

underride guard are not properly and frequently cleaned, they could result in the mating surfaces adhering to each other, rendering the retraction feature ineffective and potentially posing a risk of injury to the operator attempting to reposition the guard.

Red River concurs in NHTSA's analysis of the safety consequences of excluding RCC horizontal discharge trailers from the coverage of FMVSS No. 224. These trailers spend most of their time at a construction site and travel public roads infrequently. The risk of a severe underride collision with one of these trailers is mitigated by the location of the rear-most axle, which is not rearward enough to qualify for the wheels-back exception, but is nevertheless relatively close to the rear of the trailers.

Although not discussed by NHTSA in the NPRM, Red River also submits that a regulatory decision to provide a permanent exclusion for RCC horizontal discharge trailers will provide the safety benefit of allowing the continued manufacture and sale of a safer alternative to the steel end dump truck, the principal competitor to the RCC horizontal discharge trailer for the delivery of asphalt and other road construction materials. Because horizontal discharge trailers do not rise to unload their contents, they can be used more safely than steel end dump trucks on uneven terrain, or where bridges, power lines and other overhead obstacles may interfere with a rising dump truck.

Red River will now address the five specific questions posed in the NPRM.

1. Is a wheels back design a practical vehicle design alternative for RCC horizontal discharge trailers? Please provide data and information to support your response.

Response: No. The "wheels back" exclusion requires the rearmost axle to be no more than twelve inches from the rear of the vehicle. If an RCC horizontal discharge trailer had its rear axle located twelve inches from its rear extremity, it could not fit over the paver hoppers. A minimum of twenty inches of horizontal clearance is required between the trailer's rear axle and the paver hopper.

2. What is the maintenance and performance history of RCC horizontal discharge trailers with wheels back design?

Response: Red River does not manufacture an RCC horizontal discharge trailer with a wheels back design, so it has no information responsive to this question.

3. Is a retractable underride guard design a practical solution for RCC horizontal discharge trailers? Does such a design create a risk of injury to workers operating or working near the trailer? Please provide data and information to support your response.

Response: No, a retractable underride guard is not a practical solution for RCC horizontal discharge trailers, for the reasons outlined above and for the reasons detailed in Red River's several petitions for exemption from FMVSS No. 224 and in the joint petition for rulemaking filed by Red River and Dan Hill and Associates in March 2001. Red River believes that a retractable underride guard could pose a risk of injury to workers operating or working

near the trailer, because asphalt build-up on the guard over time jams the retraction mechanism, requiring workers operating the asphalt discharge mechanism to use substantial force to overcome the resistance in order to retract the guard. In Red River's 1998-2000 field evaluation of a prototype retractable guard installed on two vehicles, it found that the asphalt build up on the retraction mechanism introduced substantial difficulties for the workers attempting to retract the guard. These operational difficulties led the workers to decide to leave the underride guard in the retracted position in most cases, which defeated any theoretical safety benefit from the presence of the guard.

4. What is the maintenance and performance history of RCC horizontal discharge trailers with retractable underride guards?

Response: Red River evaluated a prototype retractable guard on two vehicles in 1998-2000, and identified several shortcomings. As noted above, the operational and maintenance difficulties associated with the unit led most employees to leave the guard in the retracted position most of the time, defeating any theoretical safety benefits associated with the guard. Asphalt build-up on the sliding members quickly resulted in a defeat of the automatic retraction mechanism, requiring human intervention to overcome the resistance to motion created by the build-up, either to retract the guard or to redeploy it. This field evaluation also identified significant shortcomings in the performance and customer acceptability of the spill shields that are required for safety, confidential details of which were provided to NHTSA in the 2001 petition for renewal of an exemption from FMVSS No. 224, and which are incorporated by reference in this comment.

5. Has any manufacturer of RCC horizontal discharge trailers subject to this notice been able to alternatively design a compliant vehicle equipped with an underride guard, that is able to slide over the paving machine in order to discharge asphalt mix?

Response: In 2001, Red River provided NHTSA with extensive details about its evaluation of a prototype retractable guard that was field-tested on two vehicles in 1998-2000. That field evaluation confirmed that a compliant retractable guard seriously interferes with the functionality of the RCC horizontal discharge trailer and presents significant maintenance challenges that were most often met by failing to deploy the guard, thus defeating the theoretical safety benefits of the guard.

Red River urges prompt action to complete this rulemaking proceeding and adopt a final rule providing an exclusion for RCC horizontal discharge trailers.

Sincerely,

Jerry Thomsen
Red River Manufacturing
A Division of Trail King Industries, Inc.